SWBAT

be prepared to write up
their cart friction project

Sep 4-7:31 AM

FRICTION PROJECT CHALLENGE

IF BY (MON 2/29)

- ALL PEOPLE W/ 2+ DAYS ATTENDANCE PER WEEK
- GET >60% (PASSING) BASED ON PROJECT RUBRIC

THEN CLASS PIZZA PARTY @ LUNCH TIME ($2/PERSON)

Feb 12-10:02 AM

PG 65 FINDING FRICTION ON CAR

Things we know:

$F = m \cdot a$

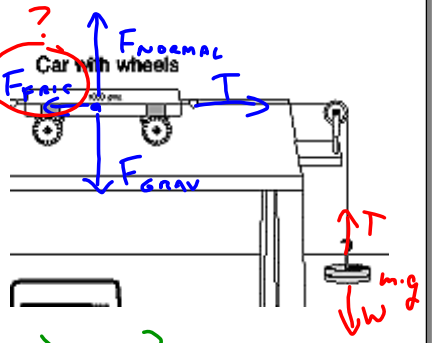
$F_{grav} = W = m * a_g$

Puller m = 50 g $\times \frac{1\ kg}{1000\ g} = .050\ kg$

Chunk m = 1000g = 1 kg

Cart m = 101.6g

$F_{GRAV} = (m_{CAR} + m_{CHUNK}) \cdot (-9.8\ m/s^2)$



Measure:

- distance on table
- time to travel from rest → a = ?

NEWTON'S 1ST LAW:

- OBJECTS KEEP DOING WHAT THEY WERE DOING UNLESS THERE IS A NET FORCE → MAKES CAR ACCELERATE

Feb 11-10:19 AM

PG 64-65

What do we want to know about the motion of our cart? How can we get the best possible answer?

(Blue = thoughts before measruing)

- STOP WATCHER = LET CAR GO?
  - [SloPro INSTEAD] x2?
- AS MUCH DISTANCE AS POSSIBLE
- LIGHTEST MASS THAT accelerates 30g
- MAKE SURE CART IS STRAIGHT

(black = thoughts while measuring)

- MARKED BEGINNING WITH TAPE, BUT IT ADDED FRICTION & CART DIDN'T MOVE, SO MOVED TAPE OVER
- HARD TO TOUCH/STOP CART EXACTLY AT BACK END

TRIAL 1: 76 cm, 20g
$t_1 = 2.9$ s. $t_2 = 9.4$ s.

TRIAL 2: 76 cm, 20g
$t_1 = 3.3$ sec $t_2 = 8.7$ s

WHY NOT THE SAME?

(9.4 − 2.9) = $\Delta t = 6.5$ s

(8.7 − 3.3) = $\Delta t = 5.4$ s

TRIAL 3: 69.7 cm, 30g
$t_1 = 3.3$ s. $t_2 = 7.8$ s

TRIAL 4: 69.7 cm, 30g
$t_1 = 3.9$ s. $t_2 = 7.7$ s.

→ DELTA = CHANGE IN SUBTRACT $t_2 - t_1$

$\Delta t = 4.5$ s.

$\Delta t = 3.8$ s

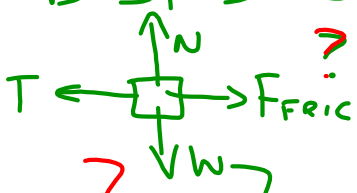
AVERAGE $\Delta t = 4.15$ s.

Feb 18-8:03 AM

"WHAT'S THE FRICTION FORCE?"

What are the big physics ideas we need to get the answer for the class project???

FREE BODY DIAGRAM



DATA

TIME
MASS
DISTANCE
$g = -9.81 m/s^2$

$F = m(a)$ → $W = m \cdot g$

WHAT CAUSES a? UNBALANCED / NET FORCES

UAM: EQUATIONS THAT CONNECT

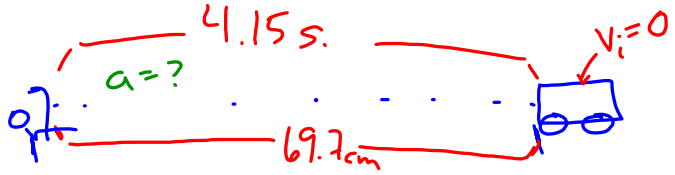
$\Delta x, V_i, V_f, \Delta t, a$

V_i = 0 m/s

Feb 22-7:54 AM

Finding acceleration using the UAM template

b)



c) $V_i = 0$ m/s
$a = ?$
CHANGE IN → $\Delta x = 69.7$ cm $= .697$ m
CHANGE IN → SUBSTANT $\Delta t = 4.15$ s.

d) $\Delta x = V_i \cdot \Delta t + \frac{1}{2} a \Delta t^2$

e) CONVERT?
$?m = 69.7 cm \times \frac{1 m}{100 cm} = .697 m$

$.697 m = 0 m/s \cdot 4.15 s + \frac{1}{2}(2)(4.15 s)^2 a$

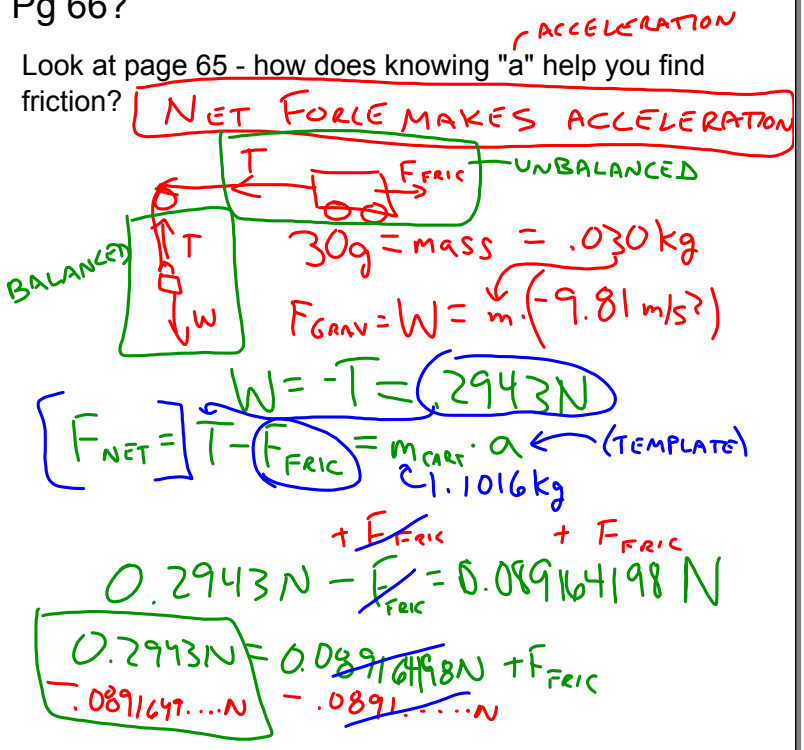
$\frac{.697 m}{8.61125 s^2} = \frac{8.61125 s^2 a}{8.61125 s^2}$

$m/s^2 = a$

Feb 22-9:51 AM

Pg 66?

Look at page 65 - how does knowing "a" help you find friction?



Quick circle - collaboration?
in YOUR words...

Feb 24-8:21 AM

Welcome!!!

SECA CP Physics
Wednesday 24 February 2016

H. Leslie Grebe
Room C-244

Centering (animals)

- Show me SchoolView if you want phone in class...
- GET A COMPUTER and log in
- Hmwk: PROJECT ROUGH DRAFT is due!!!!!

Opening Activity - Quick Write:

Look at the rubric - which section is the most confusing? WHAT ABOUT IT?

(1-5)

http://www.boredpanda.com/cute-baby-animals/

Quick circle - collaboration?

3) DATA: MASSES? 69.7cm Δt

4) RESULTS, ERROR
↳ GET TO THE ANSWERS
⇒ a
⇒ FORCES (ALL)
⇒ FRICTION

ERROR:
WHAT CONTRIBUTED TO ERROR?
⇒ RANGE
REDUCE ERROR

5TH VALUE + FORWARD

2 → WHO MIGHT CARE ABOUT FINDING FRICTION ON ROLLING THING
WHY?

Sep 7-7:04 AM